

WHAT IS CLAIMED IS:

1. A sensor dispensing device for dispensing sensors for testing of analyte concentration in a fluid to be applied thereto, the device comprising:

a cartridge having an outer casing and a plurality of sensors arranged one upon another in a stack therein;

the cartridge having a first dispensing end and a second opposing end spaced a fixed distance apart, and the cartridge including a first aperture for the ejection of a sensor closest to the first end and a second aperture opposed to the first aperture, for access by a pushing member;

wherein the first aperture and the second aperture are each provided with compliant sealing means which are carried by the cartridge and which are at least partly disposed outside the outer casing, the sealing means having first and second sealing surfaces which are capable of co-operating to releasably form a substantially moisture-tight seal when acted upon by suitable clamping forces;

the device further comprising:

a housing for receiving the cartridge;

for each of the said compliant sealing means, a pair of clamping members for releasably clamping the sealing means to form a substantially moisture-tight seal; and

a pushing member for reversible insertion through the second aperture when the sealing means are not clamped, for pushing the sensor closest to the first end through the first aperture to a dispensed position.

2. A device according to claim 1, wherein each of the sealing means comprises a tube of natural or synthetic rubber.

5 3. A device according to claim 1, wherein each of the sealing means is formed from a thermoplastic elastomeric material.

4. A device according to claim 1, wherein the sealing
10 means are co-moulded with the outer casing of the cartridge.

5. A device according to claim 1, wherein the outer casing of the cartridge contains an inner assembly
15 comprising an inner casing in which is located the stack of sensors and which has opposed apertures in register with the corresponding apertures in the outer casing, for permitting entry of the pushing member and exit of a sensor.

20 6. A device according to claim 5, further comprising spring means within the inner casing which urge the stack of sensors towards the dispensing end, and further comprising ratchet means within the inner casing which
25 prevent or inhibit movement of the stack of sensors towards the opposing end.

7. A device according to claim 5, wherein the cartridge inner casing is formed from a desiccant plastics material.

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8. A device according to claim 1, further including a

chassis connected to the housing and a delivery mechanism
for deploying the pushing member from a rest position
outside the cartridge to a deployed position in which it
will push a sensor from the cartridge to the dispensed
5 position.

9. A device according to claim 8, wherein the delivery
mechanism further includes a pusher drum rotatably mounted
on the chassis, and wherein the pushing member is flexible
10 and is at least partly wound around the pusher drum when
the sealing members are clamped.

10. A device according to claim 8, wherein actuation of
the delivery mechanism to deploy the pushing member will
15 cause unclamping of the sealing means before the pushing
member enters the second aperture and wherein withdrawal
of the pushing member from the deployed position to the
rest position will cause clamping of the sealing means
after the pushing member withdraws from the second
20 aperture.

11. A device according to claim 10, wherein the delivery
mechanism further includes a cam which is connected to the
drive drum and rotatable therewith; wherein initial
25 rotation of the cam will cause the clamping members to
unclamp the sealing means, and further rotation of the cam
will cause the clamping members to clamp the sealing
means.

30 12. A device according to claim 11, wherein the delivery
mechanism includes a drive drum and a drive spring

connecting the drive drum and the chassis; the drive drum being rotatably mounted in relation to the pusher drum, and the drive drum being turnable by a user from an initial position so as to wind up the drive spring, and
5 wherein the delivery mechanism further comprises latch means for releasably connecting the drive drum and the pusher drum when the drive drum has turned from its initial position to a pre-determined engagement position so that returning of the drive drum from its engagement
10 position to its initial position caused by unwinding of the drive spring will rotate the pusher drum.

13. A device according to claim 12, further including a return spring connecting the pusher drum and the chassis,
15 wherein rotation of the pusher drum from an initial position by the drive drum will wind up the return spring so that when the pusher drum becomes disengaged from the drive drum the return spring will return the pusher drum to its initial position.

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14. A device according to claim 9, wherein the delivery mechanism further comprises a first pinion wheel and a second pinion wheel and a drive member which is rotationally mounted in relation to the chassis; wherein
25 the said pinion wheels are meshed together and one of the pinion wheels is fixed to the pusher drum so that they will rotate together; the arrangement being such that during a full rotation of the drive member it will engage with and turn the first pinion wheel for one part of its
30 travel and will engage with and turn the second pinion wheel for a second part of its travel, whereby the pusher

drum will be initially driven so as to cause the pushing member to extend from the rest position to the deployed position and will then be reversed so that the pushing member will be returned to the rest position.

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15. A device according to claim 9, wherein the delivery mechanism further comprises a pinion wheel which is fixed to the pusher drum so that they will rotate together, and a rack mounted for reciprocal translation in relation to the chassis; the arrangement being such that during translation of the rack in a first direction it will not engage with the pinion and during translation of the rack in a second opposite direction it will engage with and turn the pinion so as to turn the pusher drum; the device further including a return spring connecting the pusher drum and the chassis, wherein rotation of the pusher drum from an initial position will wind up the return spring so that when the pinion becomes disengaged from the rack the return spring will return the pusher drum to its initial position.

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16. A device according to claim 1, wherein the sensors comprise biosensors having reagent means thereon for producing an electrical signal in response to the concentration of analyte in an applied fluid, and electrode tracks in contact with the reagent means, and wherein the device further comprises electrical contacts mounted in relation to the housing for engaging with the said electrode tracks at the said dispensed position, and a meter connected to the contacts having electronics means for producing a signal output which is dependent on the

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signal from a sensor when the sensor is engaged with the contacts.

17. A sensor dispensing device for dispensing sensors for
5 testing of analyte concentration in a fluid to be applied thereto, the device comprising:

a cartridge having an outer casing and a plurality of sensors arranged one upon another in a stack therein;

the cartridge having a first dispensing end and a
10 second opposing end spaced a fixed distance apart, and the cartridge including a first aperture for the ejection of a sensor adjacent to the first end and a second aperture opposed to the first aperture, for access by a pushing member;

15 wherein the first aperture and the second aperture each have disposed within them a tubular sealing member which is a close fit therefor and which extends outside the outer casing, the tubular sealing members being capable of releasably forming a substantially moisture-tight seal when acted upon by suitable clamping forces;

20 the device further comprising:

a housing for receiving the cartridge;

for each of the said tubular sealing members, a pair of clamping members for releasably clamping the sealing
25 means to form a substantially moisture-tight seal; and

a pushing member for reversible insertion through the second aperture when the tubular sealing members are not clamped, for pushing the sensor closest to the first end through the first aperture to a dispensed position.

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18. A device for measuring analyte concentration in a

fluid, comprising:

a cartridge having an outer casing and a plurality of biosensors arranged one upon another in a stack therein, each biosensor having reagent means thereon for producing
5 an electrical signal in response to the concentration of analyte in an applied fluid, and electrode tracks in contact with the reagent means;

the cartridge having a first dispensing end and a second opposing end spaced a fixed distance apart, and the
10 cartridge including a first aperture for the ejection of a sensor closest to the first end and a second aperture opposed to the first aperture, for access by a pushing member;

wherein the first aperture and the second aperture
15 are each provided with compliant sealing means which are carried by the cartridge and which are at least partly disposed outside the outer casing, the sealing means having first and second sealing surfaces which are capable of co-operating to releasably form a substantially
20 moisture-tight seal when acted upon by suitable clamping forces;

the device further comprising:

a housing for receiving the cartridge;

for each of the said compliant sealing means, a pair
25 of clamping members for releasably clamping the sealing means to form a substantially moisture-tight seal;

a pushing member for reversible insertion through the second aperture when the sealing means are not clamped, for pushing the sensor closest to the first end through
30 the first aperture to a dispensed position; and

electrical contacts mounted in relation to the

housing for engaging with the said electrode tracks at the
said dispensed position, and a meter connected to the
contacts having electronics means for producing a signal
output which is dependent on the signal from a sensor when
5 the sensor is engaged with the contacts.

19. A cartridge having an outer casing and a plurality of
sensors arranged one upon another in a stack therein, each
sensor being for testing of analyte concentration in a
10 fluid;

the cartridge having a first dispensing end and a
second opposing end spaced a fixed distance apart, and the
cartridge including a first aperture for the ejection of a
sensor closest to the first end and a second aperture
15 opposed to the first aperture, for access by a pushing
member;

wherein the first aperture and the second aperture
are each provided with compliant sealing means which are
at least partly disposed outside the outer casing, the
20 sealing means having first and second sealing surfaces
which are capable of co-operating to releasably form a
substantially moisture-tight seal when acted upon by
suitable clamping forces.

25 20. A cartridge according to claim 19, wherein each of
the sealing means comprises a tube of natural or synthetic
rubber.

21. A cartridge according to claim 19 wherein each of the
30 sealing means is formed from a thermoplastic elastomeric
material.

22. A cartridge according to claim 19, wherein the sealing means are co-moulded with the outer casing of the cartridge.

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23. A cartridge according to claim 19, wherein the outer casing of the cartridge contains an inner assembly comprising an inner casing in which is located the stack of sensors and which has opposed apertures in register
10 with the corresponding apertures in the outer casing, for permitting entry of the pushing member and exit of a sensor.

24. A cartridge according to claim 23, further comprising
15 spring means within the inner casing which urge the stack of sensors towards the dispensing end, and further comprising ratchet means within the inner casing which prevent or inhibit movement of the stack of sensors towards the opposing end.

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25. A cartridge according to claim 22, wherein the cartridge inner casing is formed from a desiccant plastics material.

25 26. A cartridge according to claim 21, wherein the sealing member comprises an ethylene-propylene-diene terpolymer.

27. A cartridge according to claim 26, wherein the
30 sealing member further comprises from 0.2 to 5% of an erucamide antistatic/slip agent.

28. A cartridge comprising a casing and a plurality of
sensors arranged one upon another in a stack therein, each
sensor being for testing of analyte concentration in a
5 fluid;

the casing having a first dispensing end and a second
opposing end and including a first aperture for the
ejection of a sensor adjacent to the first end and a
second aperture opposed to the first aperture, for access
10 by a pushing member;

wherein the first aperture and the second aperture
each have disposed within them a tubular sealing member
which is a close fit therefor and which extends outside
the casing, the tubular sealing members being capable of
15 releasably forming a substantially moisture-tight seal
when acted upon by suitable clamping forces;

the cartridge further including at least one spring
which urges the stack of sensors towards the dispensing
end.

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